

**USDA APHIS**

# **Wildlife Services**

**National Rabies Management Program**



**Michigan Rabies Conference  
Lansing, MI  
April 24, 2006**

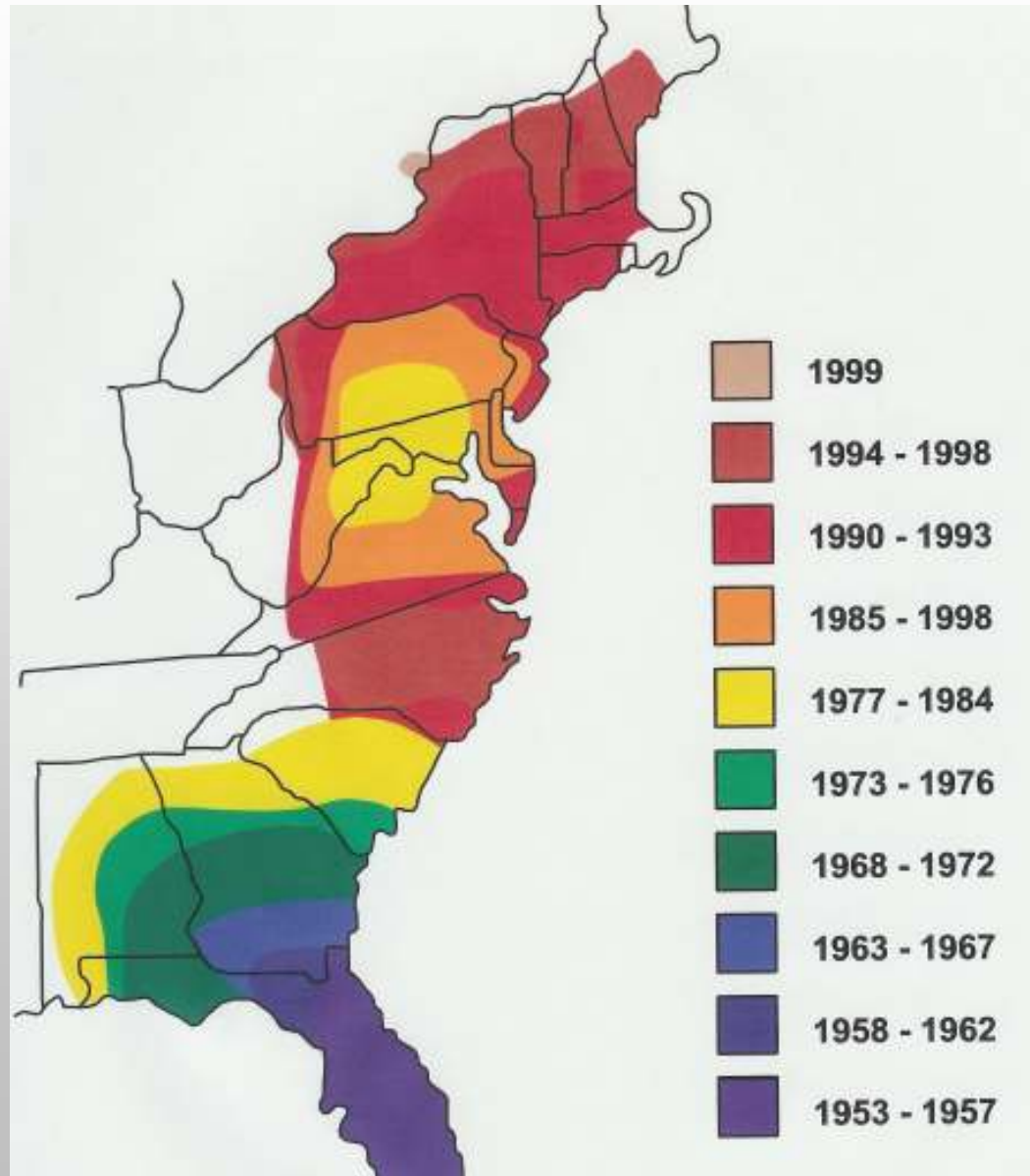
**John Forbes  
Rabies Field Coordinator**



## Distribution of Major Terrestrial Reservoirs of Rabies in the United States



# *Historic Spread of Raccoon Rabies*





**Where we are...**

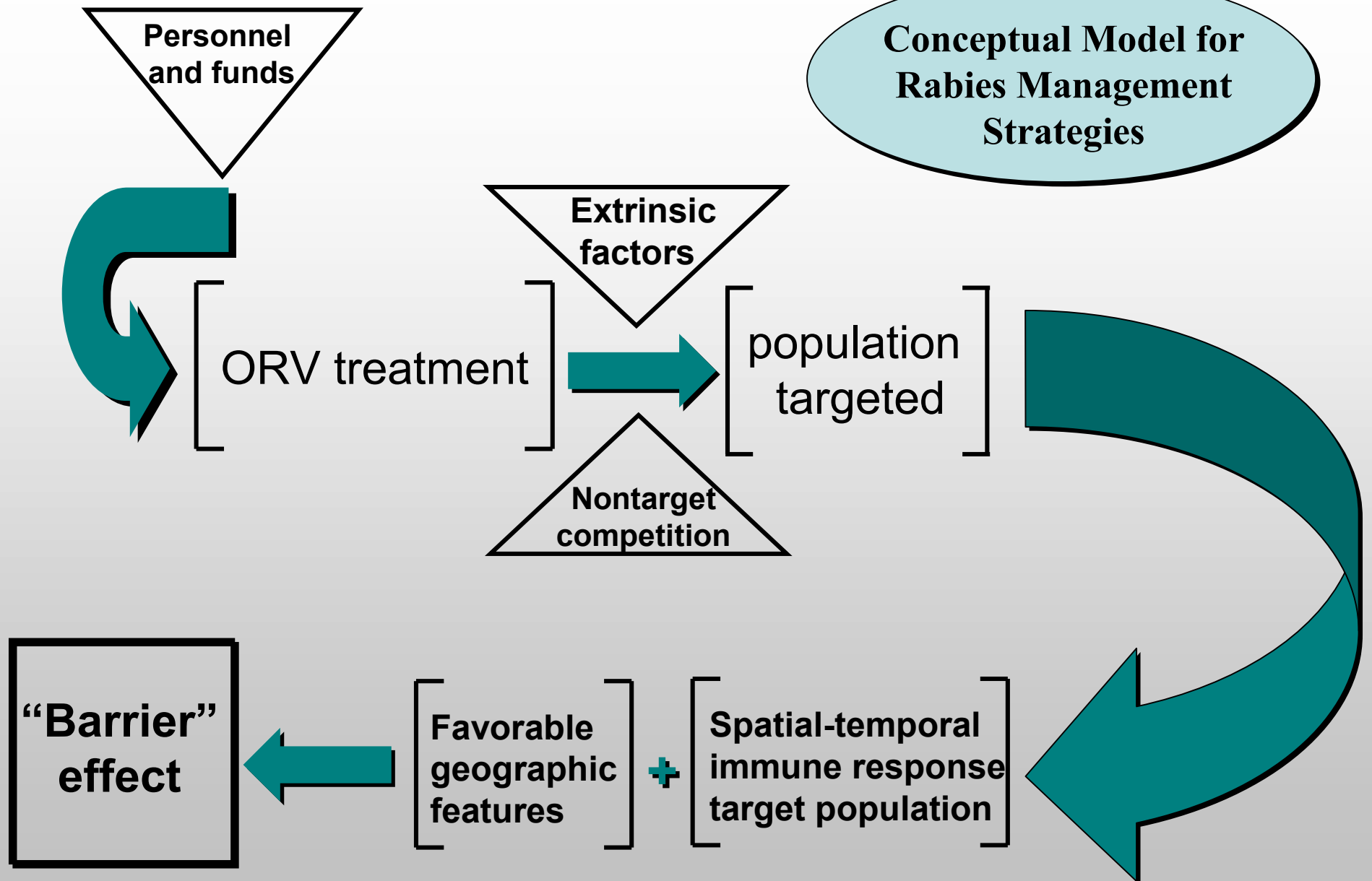
**Where we're trying to get to...**

# Vision--Eliminate terrestrial rabies

**Phase 1    Prevent spread of specific terrestrial variants of rabies virus in carnivores**

**Phase 2    Eliminate specific terrestrial variants of rabies virus in carnivores**

# Conceptual Model for Rabies Management Strategies



# Some key variables...

## ORV treatment

oral rabies vaccine

bait/attractant

delivery mode

bait density

distribution pattern

baiting frequency

time of baiting

treatment area size

## Target species

species factors

habitat preferences

pop. density

pop. structure

pop. dynamics

movement patterns

## Natural/man-made

rivers

lakes

mountainous hab.

pine habitat

major road systems

metropolitan areas



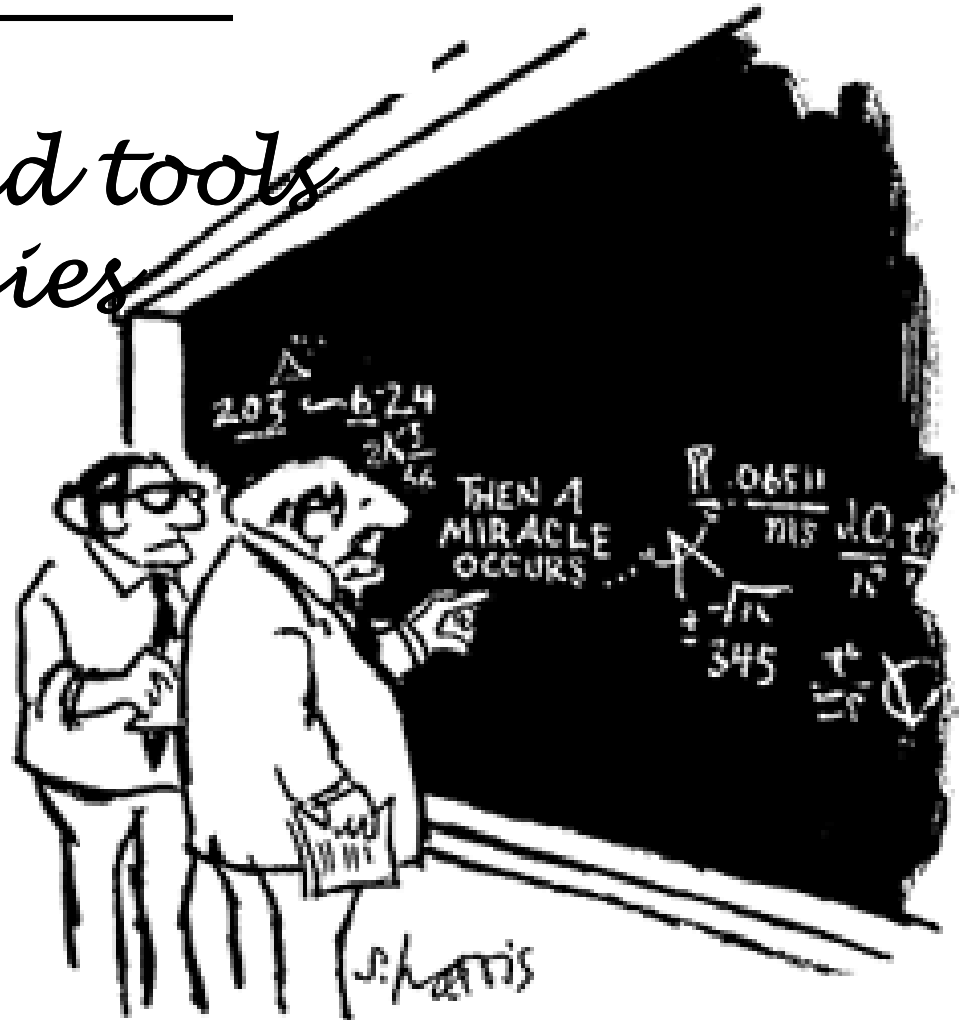


# Challenges

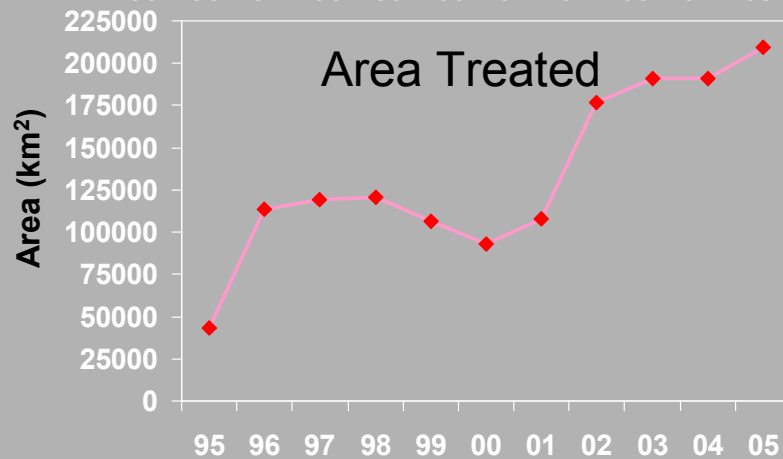
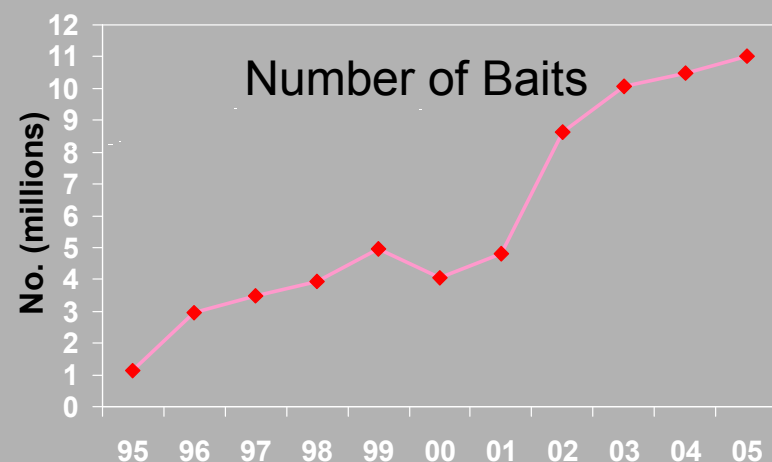
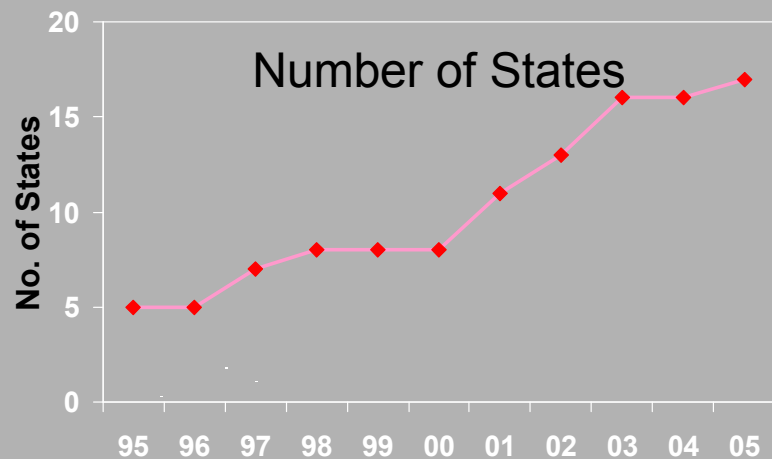
Resources

New or improved tools

Refined strategies



"I think you should be more explicit here in step two."



# *Coordinated ORV Effort in 2005*



**Distributed ~ 11 million baits in the eastern US, TX and AZ  
—imbedded and separate contingency actions to address  
emergencies (see WS Rabies Page for details)**



**Pilot ORV handout in free roaming dogs in Chinle, AZ  
(Navajo Nation)**

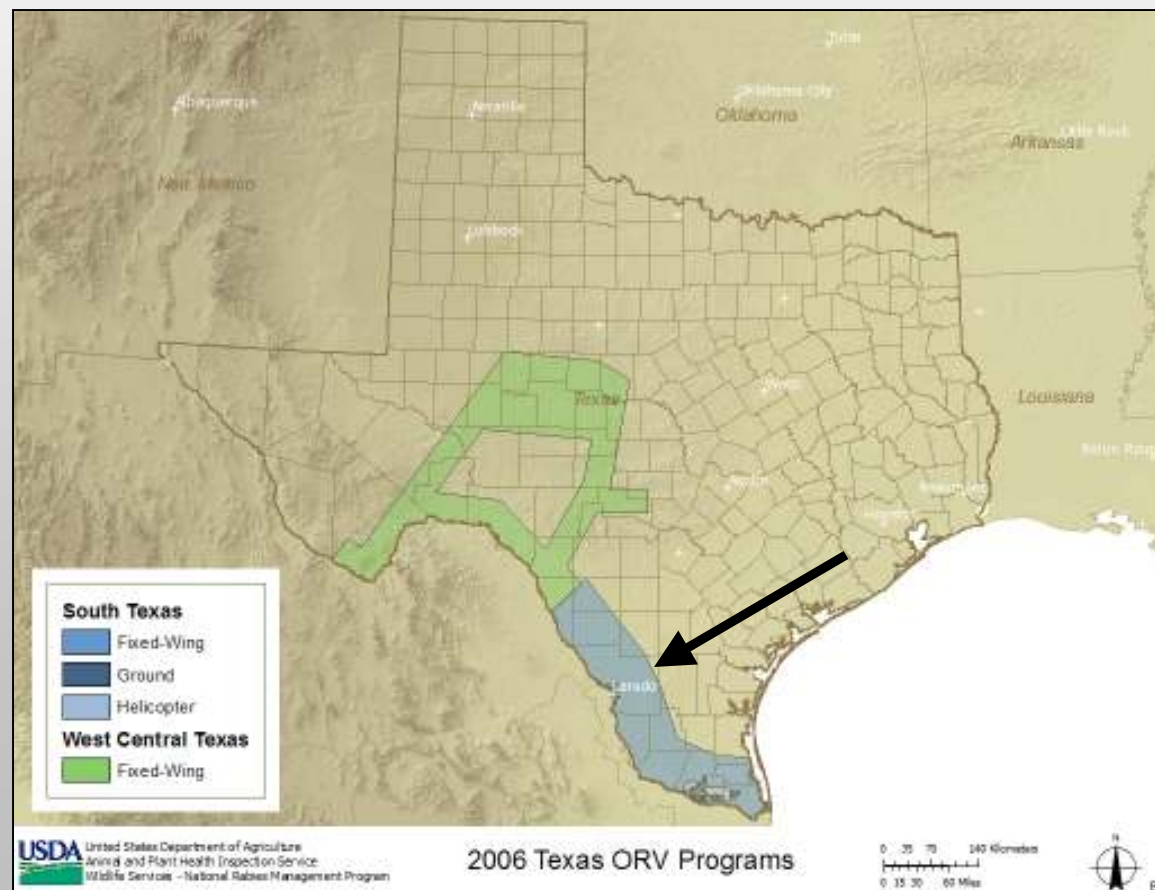


**Pilot ORV skunks Flagstaff, AZ**

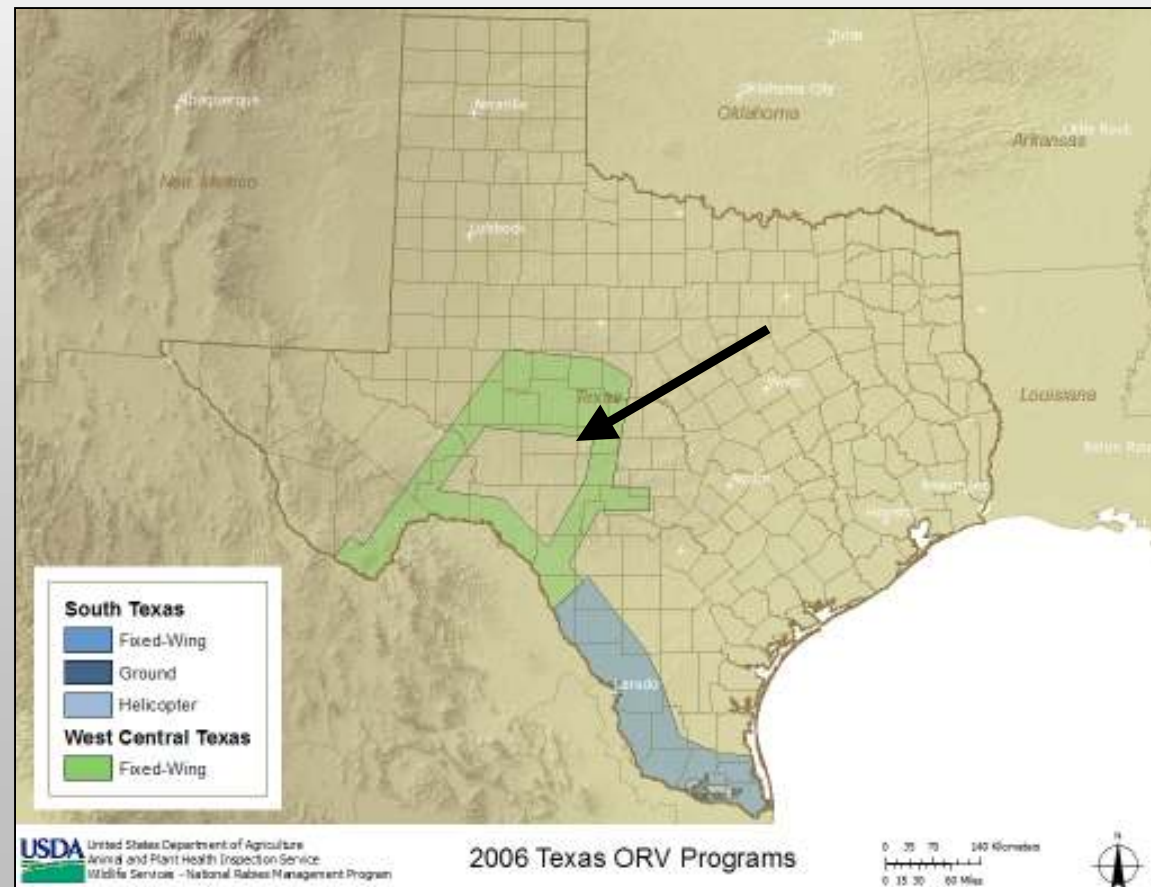
- ***Baits Distributed: 10,988,902***
- ***Miles Flown: 241,074***
- ***Aircraft Flight Hours: 1,620***
- ***Staff Hours of Flight: 3,832***
- ***Area baited: 209,391 km<sup>2</sup> (80,877 mi<sup>2</sup>)***

🐺 Eliminate canine variant from TX

🐺 Prevent reemergence



- 🐺 ORV zone to contain gray fox variant
- 🐺 Collapsing ORV zone to “eliminate” variant from U.S.



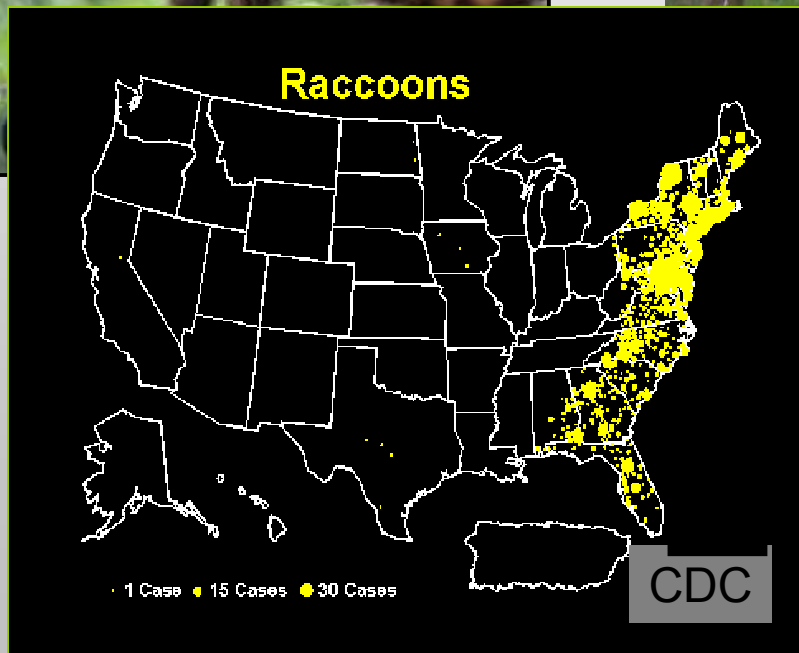




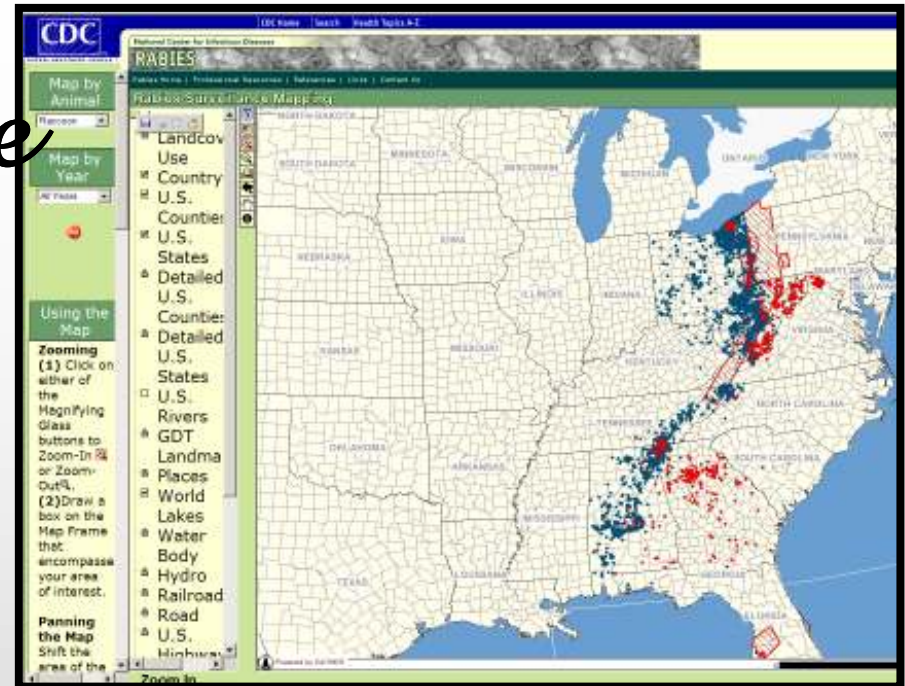
Prevent spread to new areas west and north of current distribution



Explore elimination strategies



# Rabies Surveillance



 **Real-time enhanced rabies surveillance GIS-based RabID**

 **WS using a direct rapid immunohistochemistry test (dRIT)**

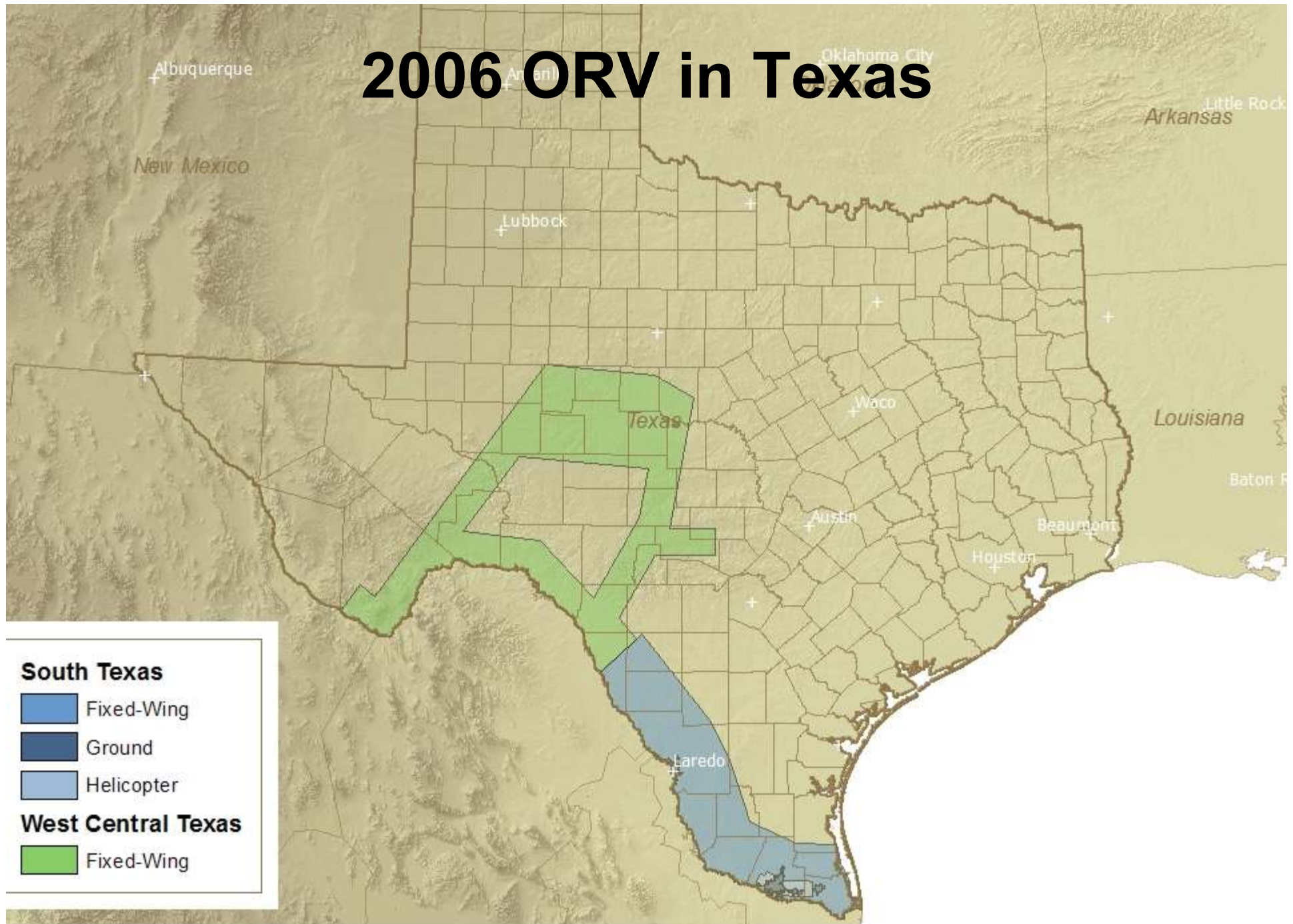
**(APHIS Operational Goal to implement in U.S, and facilitate implementation in Canada and Mexico border areas)**

 **Continue Bi-National efforts**

**(Mexico to participate in BIDS for border rabies surveillance; training at CDC and in Laredo, TX)**

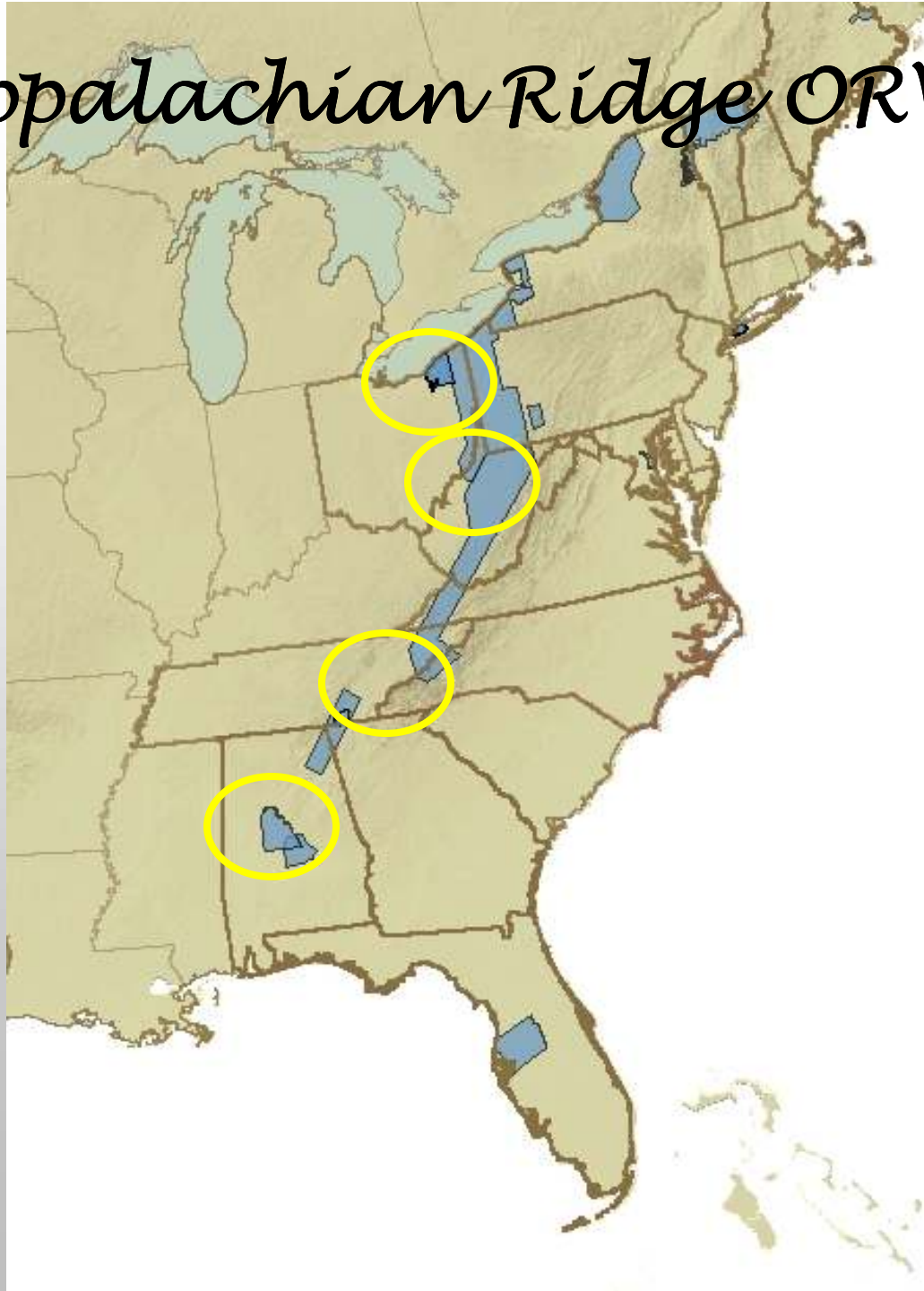


# 2006 ORV in Texas





# *Appalachian Ridge ORV Projects*

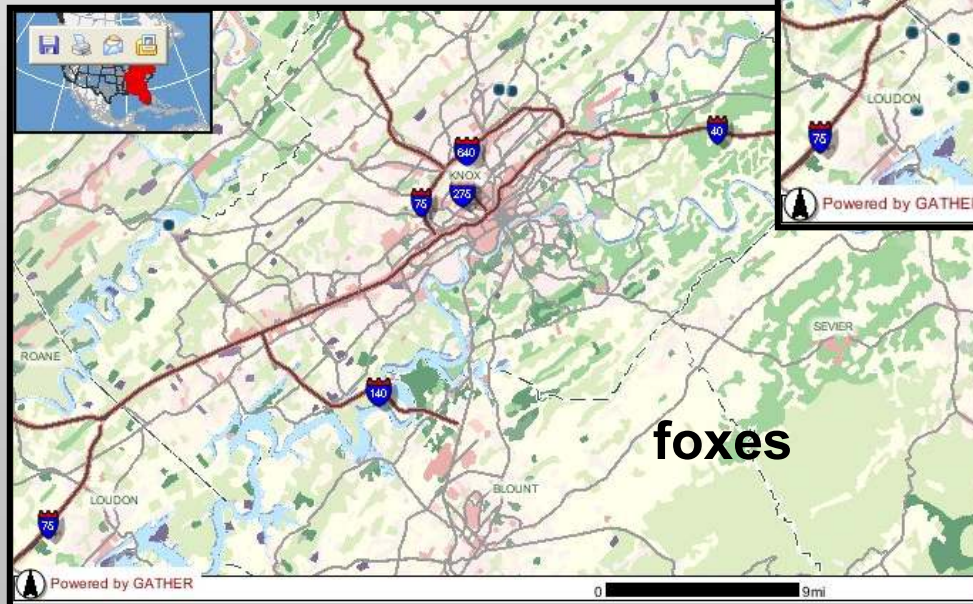
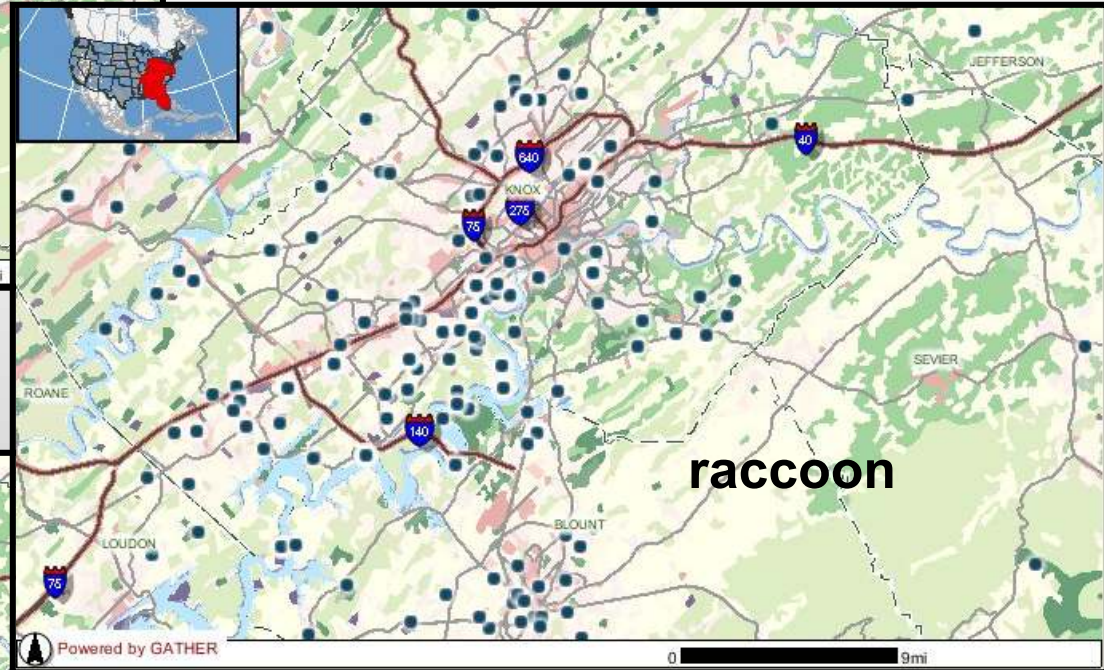
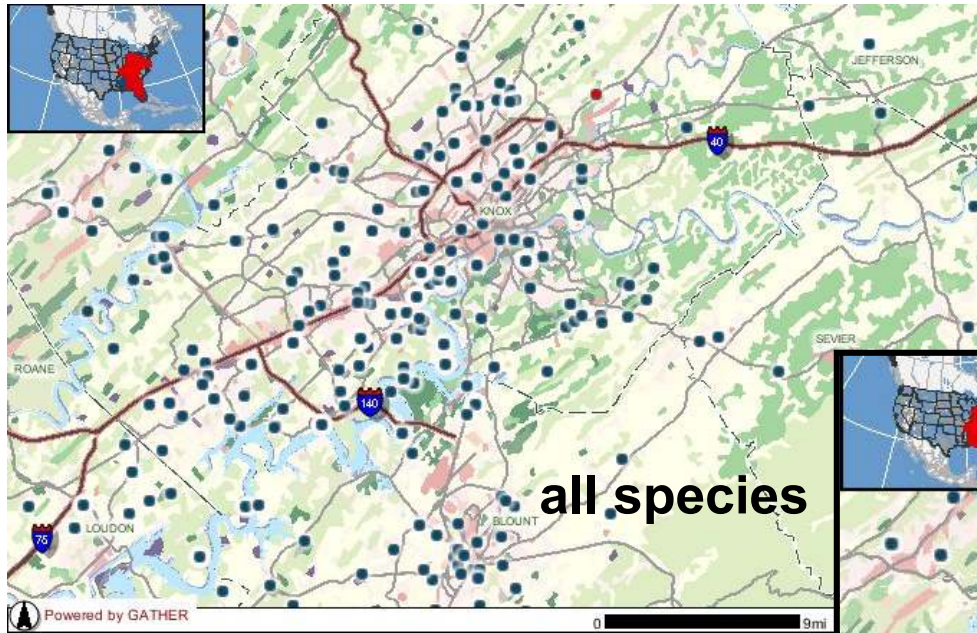




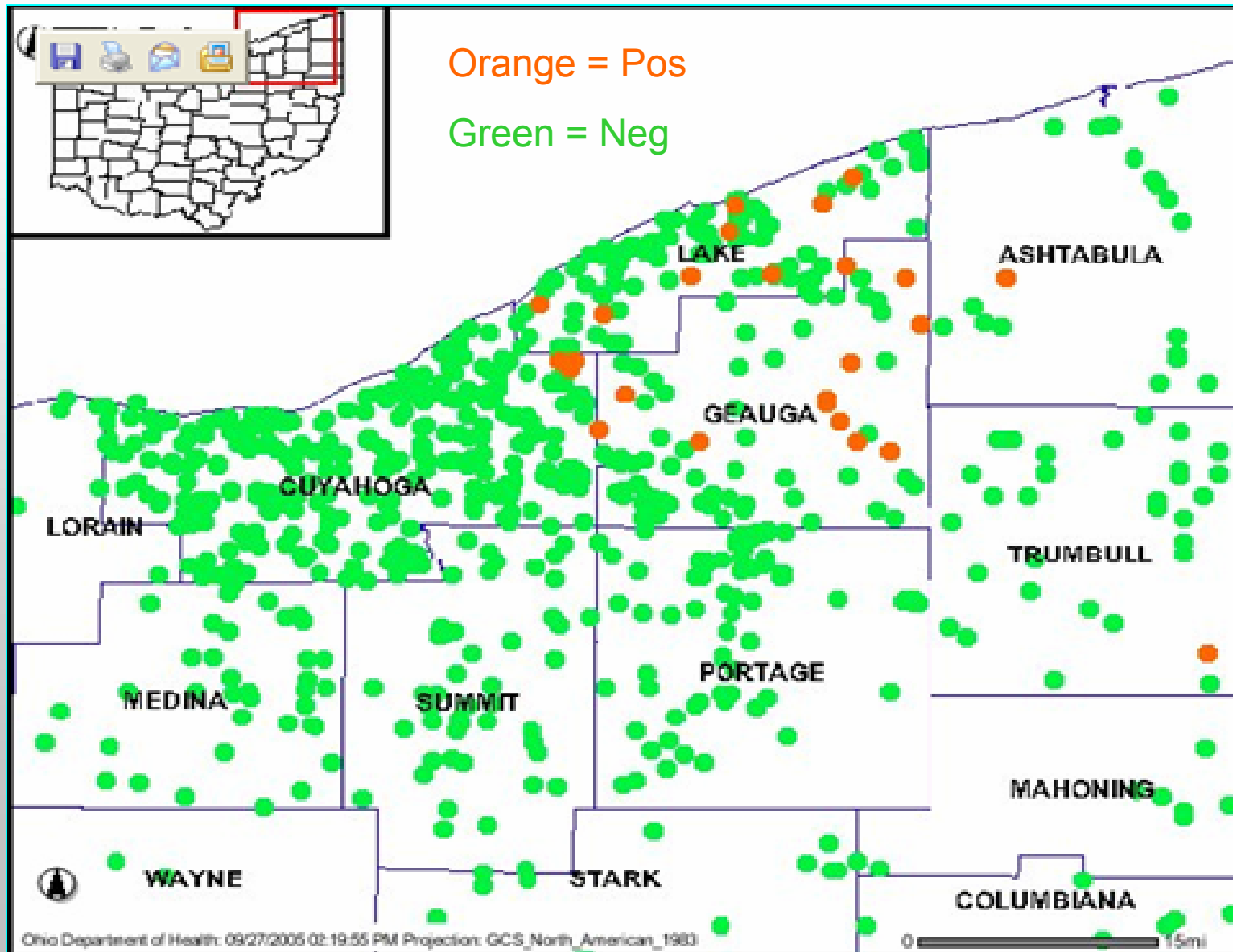


# Enhanced Rabies Surveillance

Taken from RabID 2005



# 2005 Surveillance Samples

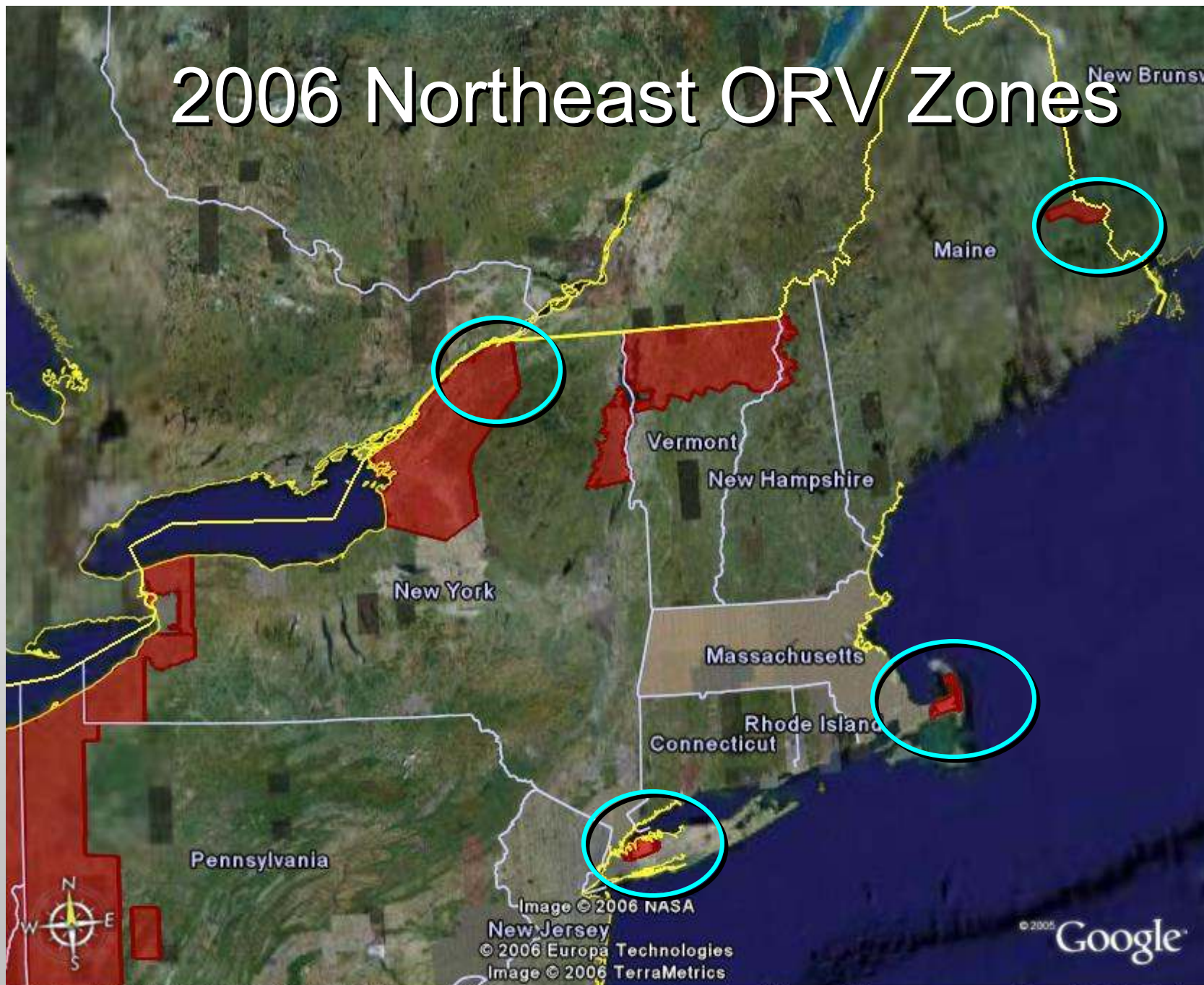


# 2005 Positive Cases by Testing Category

Reason for Testing	# Positives	Total Tested	% Positive
Odd behavior/Sick/Wounded	17	578	2.9%
Found Dead	2	142	1.4%
Roadkill	2	399	0.5%
Surveillance Trapped	1	738	0.1%
Nuisance/Otherwise Healthy	0	1651	0.0%
Pet/Animal Exposure	13	154	8.4%
Human Exposure	3	202	1.5%
Unknown/No reason listed	0	3	0.0%
Total Samples=	38	3867	1.0%



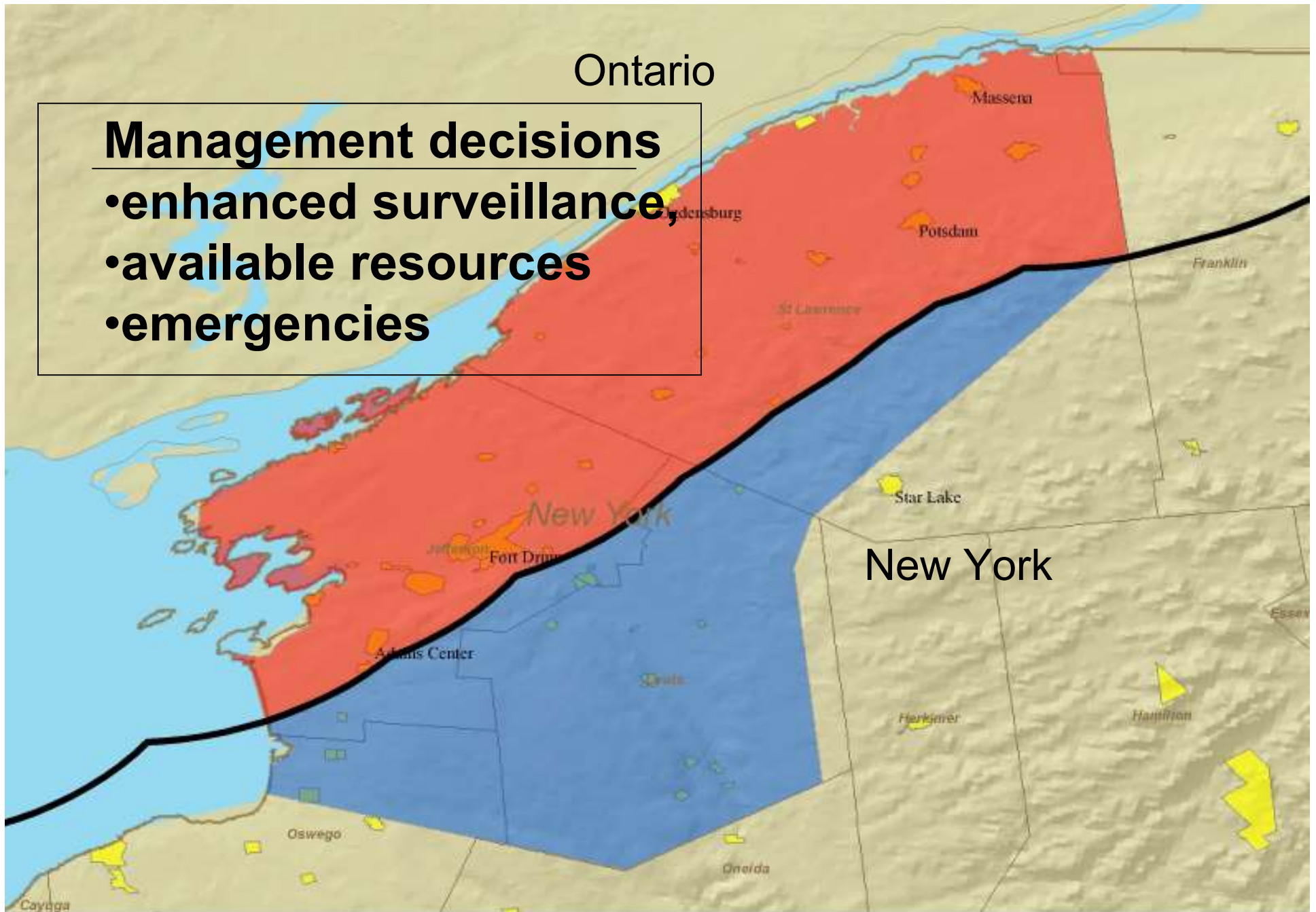
# 2006 Northeast ORV Zones



Ontario




## Management decisions

- enhanced surveillance,
- available resources
- emergencies





# *Other FY06 ORV Operations*

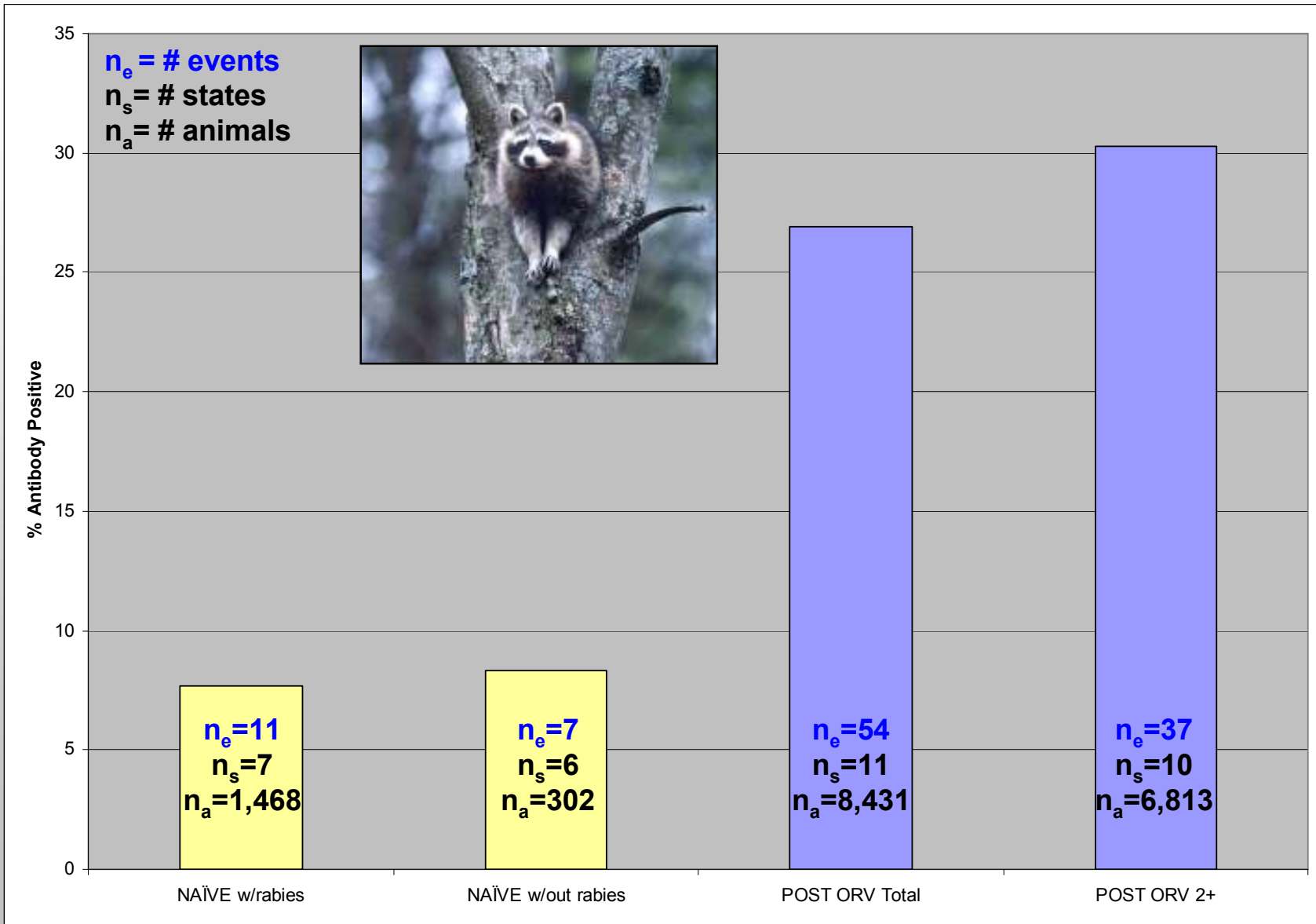
-  Increase enhanced surveillance for raccoon rabies  
(begin enhanced surveillance--Mexican and Canadian borders)
-  Replicate skunk ORV--Flagstaff, AZ
-  Replicate dog ORV--Chinle, AZ (Navajo Nation)





# ALL STATES

## % POSITIVE ( $\bar{x} \pm \text{SD}$ ) RABIES ANTIBODY RESPONSE



7.7±6.4%

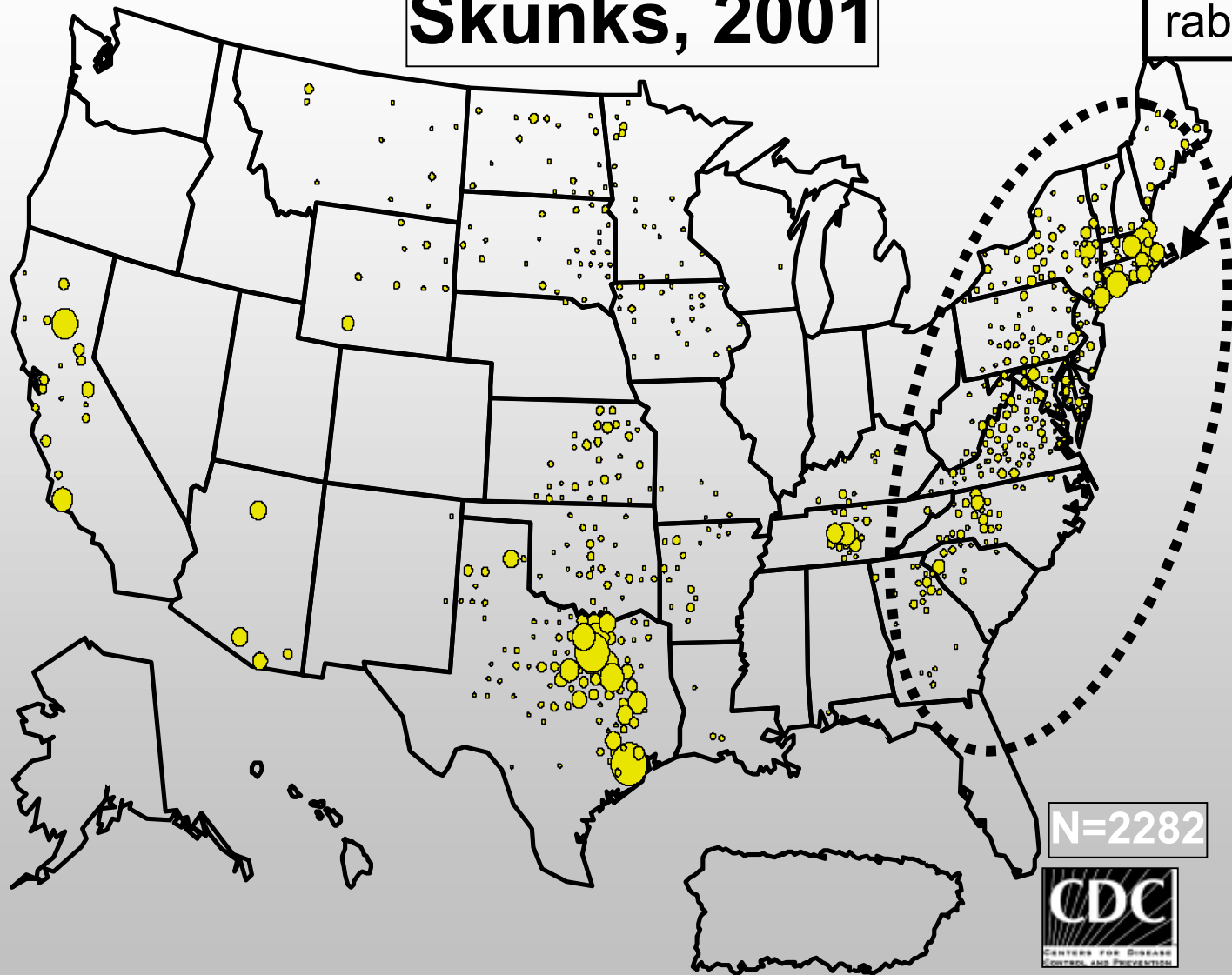
8.3±11.4%

26.9±12.0%

30.3±11.1%

# Skunks, 2001

Skunks  
infected  
with raccoon  
rabies



# *Bait Contract*

- 🐺 **Continue conversion from FMP to CS**
- 🐺 **Target--4 to 6 million in 2006**
- 🐺 **New bait prospects**



# *Research*



**NWRC Final Project Review July 19-20, 2005—next 5 years**

**-NWRC continue key studies in queue**

**-NWRC priorities will be shaped by prospect  
to conduct studies in relation to evaluating  
improved and new baits and vaccines**

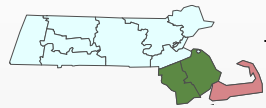


**TJU recombinant canine adeno oral rabies vaccine studies**



**CDC/WS study of protection of field VNA titers**

# Rabies Contingency Actions in US Since 2004



Surveillance  
Samples  
Submitted

Rabid  
Animals

TVR

Trapped &  
Euthanized for  
Rabies Testing

Number of  
Baits

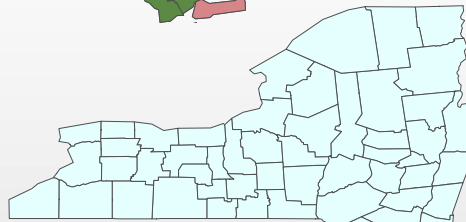
1,086

241

581

9

101,898



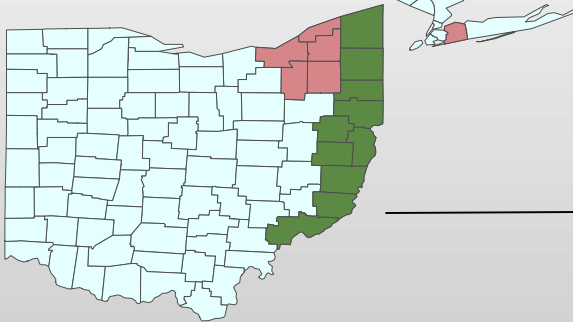
561

16

825

341

86,750



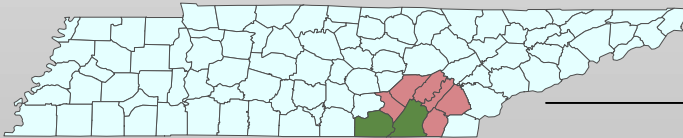
1,726

61

837

392

401,200



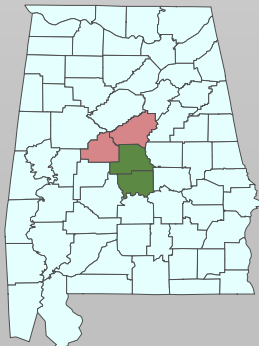
306

15

14

33

387,887



118

4

0

48

300,000

Existing Vaccination Area

Contingency Response Area

# Emergency Response Trailer



# Specifications

- Modified 16' box trailer
- Telephone/Internet capabilities
- Small office space
- BSL-2 Laboratory
- Refrigerator/Freezer
- Sink with eye wash



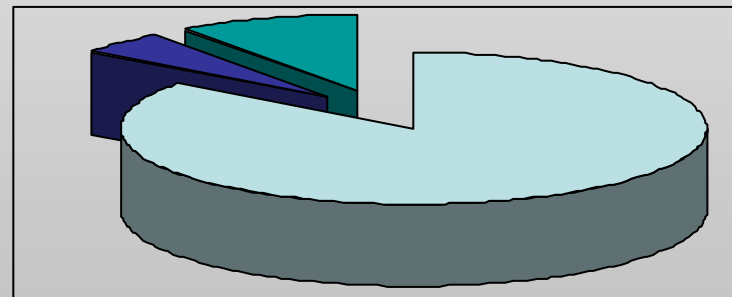




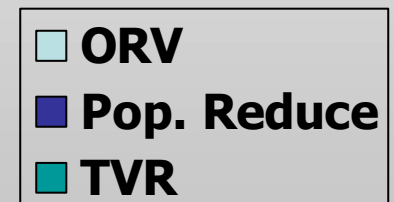
Oral rabies vaccination (ORV)  
Trap-vaccinate-release (TVR)  
Population reduction (PR)  
Contraception (future?)



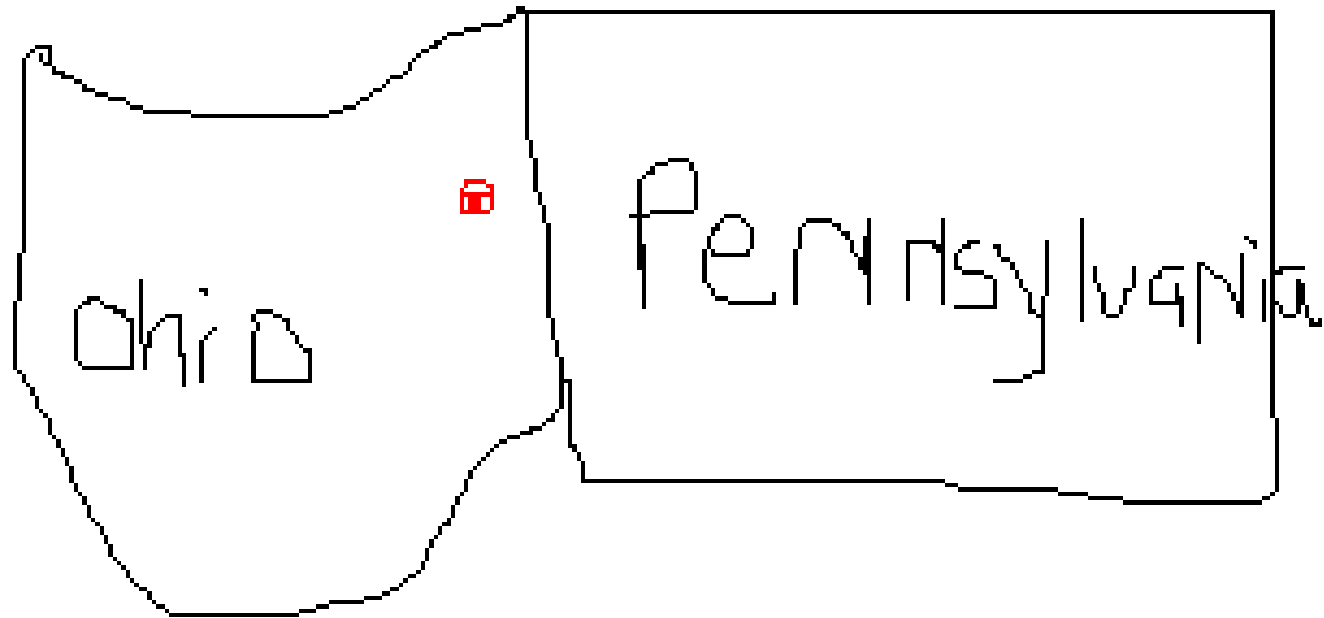
## *Integrated Rabies Control Strategy*



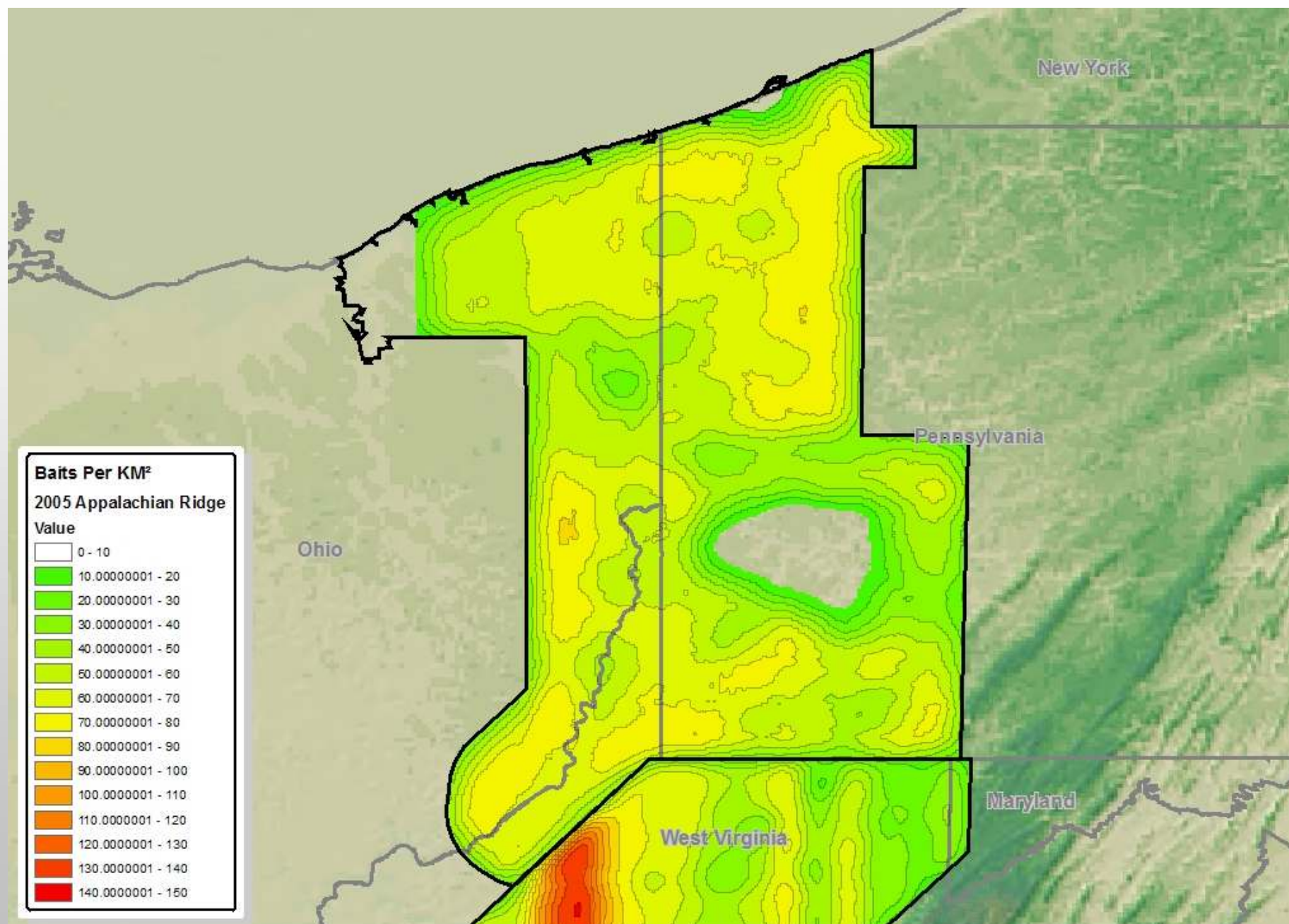
Conceptual breakdown



# GIS Technology



Ravid Raccoon



## Bill takes aim at coyote problem

*Associated Press*

FRANKFORT - Farmers who are tired of having their livestock killed by coyotes are backing a [bill that would make the trapping and live sale of the troublesome animals legal](#). House Bill 608 would allow coyotes to be sold to fox pens, which would allow the animals to be chased with hounds for training or hunting. The [bill sailed through the House](#) last week and is now in a Senate committee.



# *Internal Funding Initiatives*

✧ **President's Budget for FY 2007 (\$1.75 million)**

✧ **CCC FY 2006 \$2.85 million (AL, MA, NY, OH, TN, TX)**

# North American Rabies Management Planning

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**Information transfer**

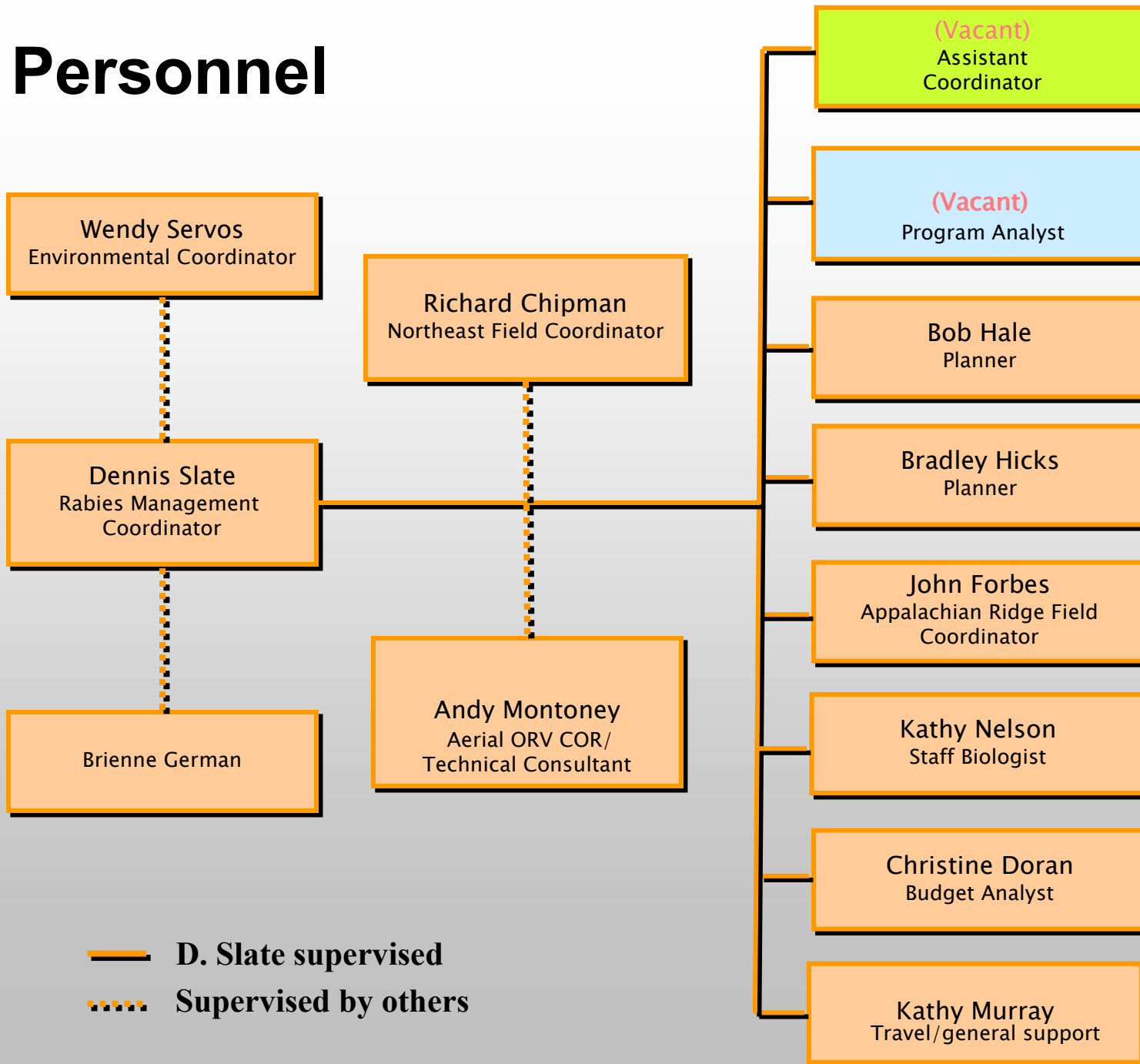
**Research**

**Surveillance and monitoring**

**Rabies control (ORV and other methods)**



# Personnel





## Take Home Message

*We've come a long way, but...*



*"According to the charts, it should  
be all clear sailing after this."*